

Editorial

Mobile mental health care - an opportunity for India

According to the World Health Organization, India had the highest number of suicides in the world in 2012 with 258,000 of 804,000 suicides worldwide. Indian youths between the ages of 15 and 29 years committed suicide with 35.5 deaths per 100,000, while suicide became the leading cause of death of young Indian women also^{1,2}. Other mental health problems noted to be specific to India are depression related to economic insecurity, anxiety among youths over educational success, and distress among young women caught between the opportunities of a changing India and pressure from traditionally minded families to marry.

India's first-ever National Mental Health Policy³, announced in 2014, aims to provide universal psychiatric care to the population by 2020, despite a relatively small health care budget per capita compared with other developing nations. The Policy describes how care should be provided through integrated care services which "should espouse the principles of universal access, equitable distribution, community participation, inter-sectoral coordination and use of appropriate technology"³. In India, with 75 per cent of the population living in rural areas, only 0.7 physicians per 1000 population and only one psychiatrist for every 343,000 Indians, access to quality mental health care is limited and traditional approaches to care are highly unlikely to reduce the high national suicide rate or reach the 20 per cent of the population who have mental disorders^{2,3}.

India, however, has one major advantage when it comes to delivering future mental health services and has the opportunity to deliver services just as described in the National Mental Health Policy, through the use of appropriate technology, especially mobile wireless technologies. Much of the population is young,

technologically sophisticated and equipped with wireless smartphones that have become an integral part of their lives. Smartphone penetrance in India is rapidly increasing and the country will have more smartphone users than the USA by 2016, with over 200 million being used nationally already⁴. This is effectively an already paid for and developed health communications technology infrastructure through which a substantial proportion of India's future mental health services may be delivered. This could, if it is taken advantage of strategically, form the core of national preventive and patient centered mental health services for the country in future years.

India has considerable internal experience using conventional telemedicine, especially through the partnership between the Indian Space Research Organization and the Apollo Telemedicine Networking Foundation which links more than 100 hospitals and provides tele-education to medical colleges and mobile telemedicine units in disaster relief camps⁵. Indian clinics and hospitals, especially in isolated areas, have long been the recipient of mobile email consultations and second opinions in many medical specialties, including psychiatry, from charities such as the Swinfen Foundation⁶, which accesses psychiatrist volunteers from the USA, UK and Australia.

This early telemedicine and electronic health care experience, and the young wirelessly enabled population, lay the foundations for India, if it so decides, to take the leap into "mobile mental health" and to set up a series of preventive, assessment and treatment platforms that can be delivered to smartphones nationally, and which can support and supplement the current government and privately run mental health services efficiently and effectively.

So what mobile mental health care is currently available?

As of 2015, the typical smartphone is equipped with forward and rear-facing high-resolution video cameras; a high-resolution display; Internet connectivity; audio inputs and outputs via a microphone, speaker, headset port; and Bluetooth connections and advanced processing power. All these features make smartphones ideal for a new class of applications providing mobile mental health care⁷.

Mobile applications in psychiatry, as in telemedicine, have three core advantages over traditional in-person meetings. These are portable and allow care anywhere, anytime, regardless of patient geography and transportation barriers. These are low cost compared with traditional brick and mortar facilities and traditional desktop computers. Finally, these have many additional features enabling context-available interventions and the collection of data from sensors which can lead to smart real-time feedback for both patients and providers. Mobile applications can directly connect health care providers with patients. But more importantly, in a country like India where providers are scarce, mobile qualities can connect patients with other patients, families and supporters, through social networks, and with multiple educational and monitoring programmes designed to prevent psychiatric disability, improve medication adherence and provide social support and therapy.

Smartphone applications have already proliferated for primary care specialties and are now being researched as a potential way to assess patients for symptoms of anxiety, depression, mania, psychotic disorders, substance use and post-traumatic stress disorders⁸. Not infrequently, these devices could provide even more patient-reported data than standard paper assessments. Wearable devices are already starting to extend the functionality of smartphones with additional sensors worn as jewelry, in smartwatches, or even embedded in clothing. These extra sensors can provide more quantifiable data that can detect gait and movement disorders⁹.

Mental health applications (apps) can be categorized in three broad areas. First, apps can serve as a communication medium allowing patients to connect with other patients, caregivers, providers or other forms of social support. Second, apps can serve as an extension of traditional in-person practice and augment psychotherapy, medication management and other

mental health interventions with journaling, symptom tracking tools, self-monitoring and psychoeducation between appointments. Third, these can act as a smart monitor using tools that may automatically predict relapse, worsened symptoms or changed activity⁷.

Research using smartphones is demonstrating how these can make various forms of therapeutic interventions more accessible using combinations of data from video, virtual reality, texting, search, geographical information systems and gaming techniques as well as popularize more commonly available Internet-based cognitive therapies, psychoeducation and bibliotherapy. Traditional worksheets and therapy homework, such as that found in cognitive behavioural therapy, can be made to be fully interactive to increase patient engagement and retention while wearable applications for heads-up displays are being developed to analyze facial emotions and track vital signs. Smartphone applications can even intervene in a patient with a substance use or other addiction at risk of relapse, alerting its user when they approach a trigger such as a liquor store, and coaching them through difficult social situations, such as a party where alcohol is served. The common theme with these applications is the digitization and automation of much of the health care provider's therapies. This allows patients to increasingly practice self-care, by themselves or with their families or for use in between sessions with their therapist, as a hybrid form of care, both online and in-person. Research is being done to create an entirely technologically based "avatar therapist" that is trained to respond therapeutically to movements and language and replace the human therapist entirely, but this is some years away¹⁰.

Mobile mental health care is a very exciting field of research that is progressing rapidly. There are hundreds of mental health applications already available and many more are being developed and driven by large amounts of venture capital funding, especially in the USA with the result that many of the applications that are already in use are not always backed by the latest research, or even much research at all. There are however, guidelines available suggesting best practices for assessing a relatively untried clinical application⁷.

Despite these drawbacks, the potential for mental health applications cannot be understated. For a country like India, these offer the option of leapfrogging mental health care over many hurdles of access and funding, and of substantially improving the

mental health of the country, and in particular of the youth of the nation. The theme of World Mental Health Day in 2015 is “Dignity in Mental Health”. In India this could mean respecting the need of the youth of the country and making substantial strategic investments in mobile mental health care as part of the excellent National Mental Health Plan in order to help those who are suffering and help to meet the goals of the Plan.

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